

ZONITOIDES ARBOREUS (SAY) (PULMONATA : ZONITIDAE) INTRODUCED INTO AUSTRALIA AND THE IDENTITY OF *ALIENITOR* IREDALE.

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Receipt of a zonitoid snail for identification from glasshouses at Ormiston, Queensland (MO6050) and the discovery of the same species living in a garden in Brisbane City (MO6051) has prompted publication of the following note.

The shell is translucent light brown, about 2.4 mm high and 4.8 mm wide, umbilicate with 4½ whorls. The animal is coloured blue-grey with paler flecks the foot having two pedal grooves. On dissection, the genitalia prove to be most complicated with a dart sac arising from the base of the penis. The dart sac has a bifurcate coronal gland and attaches to the duct of the bursa copulatrix which also has a diverticulum attaching to the penis sheath.

The subfamily Gastrodontinae of the Zonitidae is immediately suggested and no difference could be observed between the genitalia figured by Pilsbry (1946: fig. 258F) for *Zonitoides arboreus* (Say) and the genital anatomy of the Queensland material. This species has been introduced from North America to many parts of the world and Pilsbry lists an Australian record from Vancluse (error = Vaucluse), N.S.W. a suburb of Sydney.

Turning to the Australian literature (Cotton, 1954) we find no mention of *Z. arboreus* although *Z. nitidus* (Muller) is listed. Long (1972) considered that records of *Z. nitidus* from Australia probably represented specimens of *Oxychilus alliarius* (Miller). I consider that some records of *Z. nitidus* could represent *Z. arboreus* so that there is no adequately authenticated record of *Z. nitidus* from Australia.

Examination of the holotype of *Helix lyndhurstensis* Cox (1868: 11, pl.17, fig.1) in the Australian Museum (C227, broken) from Lyndhurst, N.S.W. indicates that this too is *Z. arboreus*. Iredale (1937: 6) introduced the genus name *Alienitor* for this species commenting "a small Zonitid of distinct appearance, recalling extra-limital forms". McLaughlan (1954: fig 3) dissected material he identified with *Alienitor lyndhurstensis* (Cox) from Glebe, Sydney, N.S.W. His figure of the anatomy is sufficient to show that the material was *Z. arboreus*. He may have recognised this himself for he states "Apparently developed from an introduced form of *zonitoides* (sic)". He also described a supposed new species, *Alienitor lyndhurstoides* McLaughlan (1954: 40, fig 4) from Clifton Gardens, Sydney, N.S.W. and examination of the five syntype shells (AM C101178) proves that they are also *Z. arboreus*. This is borne out by his figure of the anatomy, supposed differences from *A. lyndhurstensis* being attributable to individual variation. McLaughlan (1954) states that *A. lyndhurstensis* is common from Queensland to Victoria but Long (1972) makes no mention of *Z. arboreus* in the latter State.

To conclude, *Zonitoides arboreus* is introduced into Australia in Queensland and New South Wales. The presence of *Z. arboreus* in Victoria has not been confirmed after examination of a large quantity of preserved zonitid material in the National Museum of Victoria. I have not considered it necessary to figure Queensland material as McLaughlan's figures are adequate to confirm the presence of the species in Australia and Pilsbry's work is ideal for identification. Burch (1976) listed *Alienitor* in the subfamily Microcystinae of the Euconulidae. The taxonomic conclusions from this study are

that *Alienitor* Iredale is a junior synonym of *Zonitoides* Lehmann. *Helix lyndhurstensis* Cox and *Alienitor lyndhurstoides* McLaughlan are junior synonyms of *Zonitoides arboreus* (Say).

## REFERENCES

- BURCH, J.B. 1976. Outline classification of the Australian terrestrial molluscs (native and introduced). *J. Malac. Soc. Aust.* 3(3-4): 127-156.
- COTTON, B.C. 1954. A catalogue of introduced snails and slugs in Australia. *Rec. S. Aust. Mus.* 11(2): 177-187.
- COX, J.C. 1868. *Monograph of Australian land shells* 111 pp., 20 pl. Sydney.
- IREDALE, T. 1937. A basic list of the land Mollusca of Australia. Part II. *Aust. Zool.* 9(1): 1-39, pl.1-3.
- LONG, D.C. 1972. Zonitid snails (Gastropoda : Pulmonata) introduced into Victoria. *Mem. Nat. Mus. Vic.* 33: 115-120, pl.10.
- McLAUGHLAN, C.F. 1954. Land shells originally introduced. *Aust. Zool.* 12(1): 40.
- PILSBRY, H.A. 1946. Land Mollusca of North America, 2(1): 1-520, fig. 1-281, 1 pl. *Acad. Nat. Sci. Philadelphia, Monographs* 3.